

IV. TRENDS IN USE OF PESTICIDES IN CERTAIN PESTICIDE CATEGORIES

The following tables and figures summarize use trends of currently registered pesticide active ingredients in five different categories. The categories are:

- 1) currently registered active ingredients listed on the State's Proposition 65 list of chemicals "known to cause reproductive toxicity";
- 2) currently registered active ingredients listed by U.S. EPA as B2 carcinogens or on the State's Proposition 65 list of chemicals "known to cause cancers";
- 3) pesticides that are cholinesterase inhibitors, that is, organophosphate and carbamate chemicals;
- 4) pesticides on the groundwater protection list [California Code of Regulations, Title 3, Division 6, Chapter 4, Subchapter 1, Article 1, Section 6800(a)] and norflurazon, which DPR is recommending be listed as a restricted material;
- 5) pesticides from the toxic air contaminants list (California Code of Regulations, Title 3, Division 6, Chapter 4, Subchapter 1, Article 1, Section 6860).

Pesticide use is given by the number of pounds of active ingredient and the total number of acres treated. The data for pounds include both agricultural and non-agricultural applications; the data for acres are primarily agricultural applications. The number of acres treated means the cumulative number of acres treated; the acres treated in each application are summed even when the same field is sprayed more than once in a year. The "active ingredient" is the component in the pesticide product that kills or otherwise controls the target pest. The data were prepared by running queries on DPR's pesticide use reporting (PUR) database.

To improve data quality, records considered probable errors (outliers) were removed from the PUR database. Errors can occur, for example, when those reporting pesticide use shift decimal points during data entry. This involved the development of complex error checking procedures, a data improvement process which is ongoing.

Table 3A. The reported pounds of pesticides used which are on the State's Proposition 65 list of chemicals "know to cause reproductive toxicity." Use is given for each year from 1991 to 1997. Use includes both agricultural and non-agricultural applications. Data are from the Department of Pesticide Regulation's Pesticide Use Reports with probable errors removed.

Active Ingredient	1991	1992	1993	1994	1995	1996	1997
1080	1	<1	<1	<1	<1	1	<1
AMITRAZ	5,834	8,953	4,877	70,363	75,018	55,459	66,439
ARSENIC PENTOXIDE	201,059	262,017	150,200	86,445	83,814	205,089	64,372
ARSENIC TRIOXIDE	<1	<1	<1	<1	<1	<1	<1
BENOMYL	116,961	125,777	536,594	141,586	189,943	148,433	114,406
BROMOXYNIL OCTANOATE	79,023	106,724	112,643	127,154	119,407	148,480	115,368
CYANAZINE	275,809	340,945	501,962	532,688	641,057	566,633	470,838
CYCLOATE	44,451	49,041	51,715	51,035	49,138	44,628	55,459
DICLOFOP-METHYL	12,021	30,616	23,082	38,276	16,540	79,874	41,130
DISODIUM CYANODITHIOIMIDO CARBONATE	<1	0	0	0	0	0	0
EPTC	747,253	641,581	698,176	765,576	660,185	703,996	579,245
ETHYLENE OXIDE	29	7	1,471	3	0	0	0
FENOXPAPROP ETHYL	0	0	0	5,023	3,731	3,974	3,895
FLUAZIFOP-BUTYL	12,660	18,361	21,356	19,772	20,451	15,095	15,253
HYDRAMETHYLNON	114	145	142	227	807	1,741	5,456
LINURON	64,063	73,577	230,827	79,950	84,937	84,335	84,621
METAM-SODIUM	4,873,276	8,554,646	8,588,969	11,122,361	14,975,528	15,253,924	14,969,732
METHYL BROMIDE	17,578,480	18,051,774	14,115,900	16,607,324	17,165,964	16,022,069	15,663,832
MYCLOBUTANIL	40,394	57,288	86,712	69,941	85,525	89,087	94,375
NABAM	0	4	0	8	1	0	0
NICOTINE	3,259	898	457	457	228	298	258
NITRAPYRIN	605	332	175	150	639	114	49
OXADIAZON	17,179	18,122	19,269	20,488	21,458	25,260	23,196
OXYDEMETON-METHYL	115,179	118,285	117,416	111,347	120,101	106,612	115,781
OXYTHIOQUINOX	5,347	6,829	6,207	4,474	7,172	6,204	2,709
POTASSIUM DIMETHYL DITHIO CARBAMATE	0	0	21	47	0	0	15
RESMETHRIN	3,101	1,519	1,720	1,069	856	661	594
SODIUM DIMETHYL DITHIO CARBAMATE	0	4	0	337	1	0	0
STREPTOMYCIN SULFATE	0	1,988	5,110	6,165	9,619	9,494	9,605
TAU-FLUVALINATE	3,944	4,632	3,730	4,723	3,787	4,137	3,040
TRIADIMEFON	45,968	48,645	29,699	24,147	20,692	17,370	12,204
VINCLOZOLIN	42,626	41,221	37,550	33,661	48,270	60,286	46,908
WARFARIN	1	1	1	<1	<1	1	1
BROMOXYNIL HEPTANOATE	0	0	0	0	0	0	9
LITHIUM HYPOCHLORITE	0	0	0	0	0	0	1
Total	24,288,640	28,563,933	25,345,982	29,924,796	34,404,869	33,653,254	32,558,793

Table 3B. The reported cumulative acres treated with pesticides which are on the State's Proposition 65 list of chemicals "know to cause reproductive toxicity." Use is given for each year from 1991 to 1997. Use includes primarily agricultural applications. The total for acres treated is less than the sum of acres for all active ingredients because some products contain more than one active ingredient. Data are from the Department of Pesticide Regulation's Pesticide Use Reports with probable errors removed.

Active Ingredient	1991	1992	1993	1994	1995	1996	1997
1080	241	<1	<1	53	32	25	<1
AMITRAZ	4,126	6,327	3,391	137,434	174,867	129,857	161,651
ARSENIC PENTOXIDE	<1	103	<1	660	<1	<1	<1
ARSENIC TRIOXIDE	<1	<1	<1	<1	<1	<1	<1
BENOMYL	217,799	256,653	278,444	271,289	360,931	310,563	245,687
BROMOXYNIL OCTANOATE	153,791	222,988	204,241	245,715	224,276	277,062	224,250
CYANAZINE	154,286	206,875	263,463	284,812	365,520	325,627	288,087
CYCLOATE	21,806	23,172	21,600	22,571	20,685	19,597	25,986
DICLOFOP-METHYL	15,406	41,919	27,457	47,273	19,314	89,276	47,217
DISODIUM CYANODITHIOIMIDO CARBONATE	<1	<1	<1	<1	<1	<1	<1
EPTC	282,029	238,804	246,970	273,441	241,587	232,820	208,093
ETHYLENE OXIDE	<1	<1	<1	<1	<1	<1	<1
FENOXAPROP ETHYL	<1	<1	<1	33,712	24,153	25,540	24,439
FLUAZIFOP-BUTYL	64,702	78,596	88,357	90,378	80,726	58,367	54,192
HYDRAMETHYLNON	<1	<1	2	<1	3	36	35
LINURON	71,368	87,584	111,535	97,887	105,284	104,772	110,067
METAM-SODIUM	63,583	135,606	136,218	183,625	199,457	215,899	198,395
METHYL BROMIDE	103,092	124,739	89,220	106,694	107,933	96,507	103,068
MYCLOBUTANIL	426,456	574,972	859,361	692,036	841,178	814,268	866,360
NABAM	<1	<1	<1	<1	<1	<1	<1
NICOTINE	2,789	2,005	348	382	237	167	128
NITRAPYRIN	1,277	698	434	261	1,493	147	105
OXADIAZON	2,706	1,317	1,094	1,812	2,400	2,213	1,832
OXYDEMETON-METHYL	238,216	235,570	235,013	226,433	253,868	220,824	244,056
OXYTHIOQUINOX	8,040	9,407	9,227	6,410	10,000	8,768	5,896
POTASSIUM DIMETHYL DITHIO CARBAMATE	0	<1	<1	6	<1	<1	<1
RESMETHRIN	317	398	512	419	222	144	182
SODIUM DIMETHYL DITHIO CARBAMATE	0	<1	<1	<1	<1	<1	<1
STREPTOMYCIN SULFATE	<1	19,260	49,236	58,703	84,111	84,999	89,336
TAU-FLUVALINATE	21,522	21,690	24,386	26,578	19,771	22,156	18,387
TRIADIMEFON	303,307	330,965	165,472	132,295	118,746	100,142	59,229
VINCLOZOLIN	68,951	59,653	49,042	49,519	66,672	82,968	67,373
WARFARIN	309	493	112	192	151	541	382
BROMOXYNIL HEPTANOATE	<1	<1	<1	<1	<1	<1	36
LITHIUM HYPOCHLORITE	<1	<1	<1	<1	<1	<1	<1
Total	2,226,118	2,679,795	2,865,133	2,990,591	3,323,617	3,223,288	3,044,472

Pounds of Pesticides Categorized as Reproductive Toxins Reported Used in California

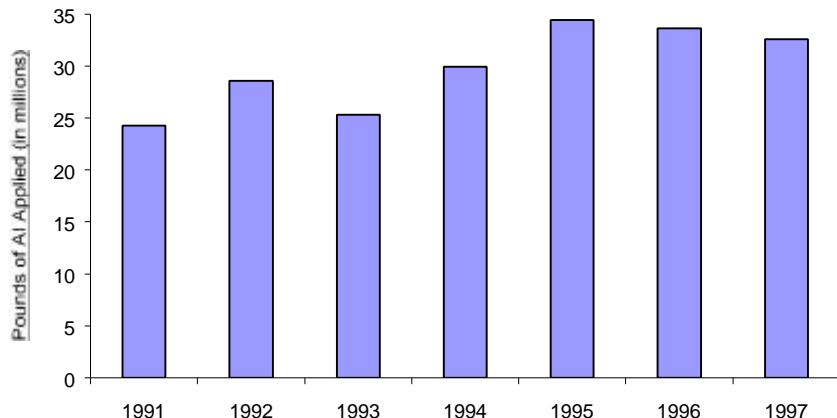


Figure 1A. The pounds of pesticides used which are on the State's Proposition 65 list of chemicals "know to cause reproductive toxicity." Use is given for each year from 1991 to 1997. Use includes both agricultural and non-agricultural applications. Data are from the Department of Pesticide Regulation's Pesticide Use Reports with probable errors removed.

Acres Treated in California with Pesticides Categorized as Reproductive Toxins

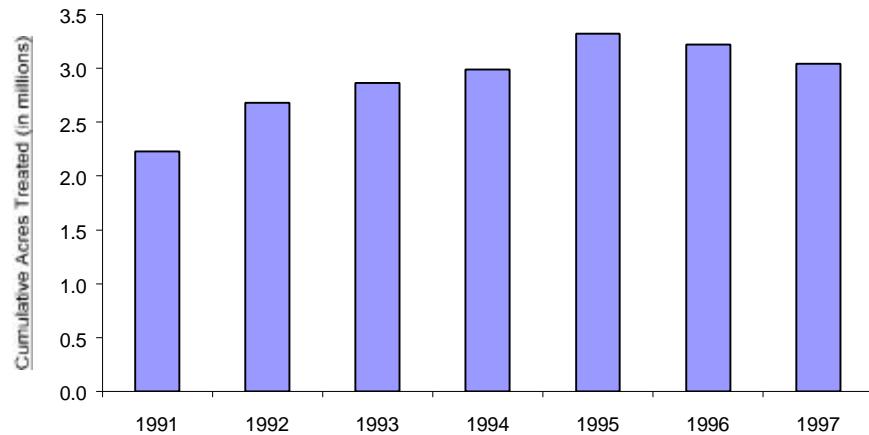


Figure 1B. The reported cumulative acres treated with pesticides which are on the State's Proposition 65 list of chemicals "know to cause reproductive toxicity." Use is given for each year from 1991 to 1997. Use includes primarily agricultural applications. Data are from the Department of Pesticide Regulation's Pesticide Use Reports with probable errors removed.

Table 4A. The reported pounds of pesticides used that are listed by U.S. EPA as B2 carcinogens, or that are on the State's Proposition 65 list of chemicals "known to cause cancer." Use is given for each year from 1991 to 1997. Use includes both agricultural and non-agricultural applications. Data are from the Department of Pesticide Regulation's Pesticide Use Reports with probable errors removed.

Active Ingredient	1991	1992	1993	1994	1995	1996	1997
1,3-DICHLOROPROPENE	13,555	23,998	47,694	2,122	409,821	1,956,846	2,400,930
ACIFLUORFEN, SODIUM SALT	<1	17	6	1	6	11	29
ALACHLOR	88,586	82,046	44,957	42,854	41,119	45,733	51,259
ARSENIC ACID	98,800	72,182	13,014	27,571	37,206	53,777	59,835
ARSENIC PENTOXIDE	201,059	262,017	150,200	86,445	83,814	205,089	64,372
ARSENIC TRIOXIDE	<1	<1	<1	<1	<1	<1	<1
CACODYLIC ACID	26,044	37,928	51,314	43,685	43,275	31,417	26,060
CAPTAN	253,452	295,542	483,507	608,658	734,314	918,588	799,878
CHLOROTHALONIL	656,775	824,171	826,918	832,288	1,125,790	1,053,319	779,328
CHROMIC ACID	279,852	364,900	209,555	120,822	117,092	286,521	89,931
CREOSOTE	318,174	304,448	479,417	871,469	444,461	491,044	259,086
DAMINOZIDE	7,696	7,636	7,763	6,775	6,763	7,944	11,028
DDVP	5,466	5,224	3,331	4,798	6,063	13,097	13,636
DIPROPYL ISOCINCHOMERONATE	<1	10	<1	2	1	3	<1
ETHYLENE OXIDE	29	7	1,471	3	0	0	0
FENOXYCARB	683	1,194	1,928	1,492	1,673	712	65
FOLPET	3	1	3	3	2	<1	<1
FORMALDEHYDE	271,663	5,094	13,322	11,864	153,519	334,548	403,824
IPRODIONE	350,363	373,968	452,112	431,318	564,127	520,763	424,338
LINDANE	8,590	8,208	9,715	5,281	4,507	4,576	5,388
MANCOZEB	283,715	336,371	446,086	464,924	659,240	567,866	526,364
MANEB	352,155	464,469	625,326	912,903	1,257,122	1,328,318	1,081,124
METAM-SODIUM	4,873,276	8,554,646	8,588,969	11,122,361	14,975,528	15,253,924	14,969,732
MINERAL OIL	961,252	2,156,201	2,709,864	3,444,484	3,350,535	4,797,876	5,542,530
ORTHO-PHENYLPHENOL, SODIUM SALT	36,658	64,940	63,741	46,825	30,830	33,539	25,389
OXADIAZON	17,179	18,122	19,269	20,488	21,458	25,260	23,196
OXYTHIOQUINOX	5,347	6,829	6,207	4,474	7,172	6,204	2,709
PARA-DICHLOROBENZENE	108	82	37	3	2	4	3
PCP	196,252	107,946	91,123	40	3	3	8
PETROLEUM DISTILLATES	2,571,237	2,763,671	3,200,539	2,279,777	2,459,518	1,711,402	1,798,960
PETROLEUM DISTILLATES, REFINED	91	10,842	21,107	63,524	45,967	38,396	45,094
PETROLEUM OIL, UNCLASSIFIED	17,732,970	18,632,896	21,757,068	19,674,078	18,688,068	20,063,969	24,633,269
POTASSIUM DICHROMATE	2,458	1,705	106	596	380	41	50
PROPARGITE	1,291,184	1,702,328	1,653,855	1,742,736	1,770,065	1,743,278	1,816,028

Table 4A (cont.)

Active Ingredient	1991	1992	1993	1994	1995	1996	1997
PROPOXUR	4,374	3,187	2,674	2,667	3,296	1,341	1,760
PROPYLENE OXIDE	111,919	131,091	34,764	41,815	131,593	224,495	198,559
PROPYZAMIDE	118,828	109,266	110,123	111,797	113,761	106,811	99,292
SILICA AEROGEL	26,896	8,525	10,052	14,245	12,599	16,216	10,780
SODIUM DICHROMATE	0	0	0	0	0	180,478	182,185
THIODICARB	0	0	<1	0	13,679	122,927	156,002
Total	31,166,688	37,741,708	42,137,139	43,045,192	47,314,368	52,146,335	56,502,023

Table 4B. The reported cumulative acres treated in California with pesticides that are listed by U.S. EPA as B2 carcinogens, or that are on the State's Proposition 65 list of chemicals "known to cause cancer." Use is given for each year from 1991 to 1997. Use includes primarily agricultural applications. The total for acres treated is less than the sum of acres for all active ingredients because some products contain more than one active ingredient. Data from the Department of Pesticide Regulation's Pesticide Use Reports with probable errors removed.

Active Ingredient	1991	1992	1993	1994	1995	1996	1997
1,3-DICHLOROPROPENE	91	447	823	33	4,174	17,223	22,193
ACIFLUORFEN, SODIUM SALT	<1	4	7	2	8	<1	<1
ALACHLOR	33,312	27,472	17,637	16,135	15,359	18,181	19,059
ARSENIC ACID	<1	<1	<1	<1	<1	<1	<1
ARSENIC PENTOXIDE	<1	103	<1	660	<1	<1	<1
ARSENIC TRIOXIDE	<1	<1	<1	<1	<1	<1	<1
CACODYLIC ACID	206,243	283,516	326,027	304,060	315,336	251,414	192,816
CAPTAN	127,668	134,103	212,563	244,164	295,860	381,989	347,631
CHLOROTHALONIL	382,812	517,695	535,201	517,357	674,126	674,086	492,219
CHROMIC ACID	<1	103	<1	660	<1	<1	<1
CREOSOTE	2	<1	<1	<1	<1	<1	<1
DAMINOZIDE	2,941	3,113	3,262	2,692	2,659	2,653	3,512
DDVP	5,530	2,960	683	1,888	1,887	1,499	2,596
DIPROPYL ISOCINCHOMERONATE	<1	<1	2	50	10	<1	<1
ETHYLENE OXIDE	<1	<1	<1	<1	0	0	0
FENOXYCARB	30	674	1	5	11	5	<1
FOLPET	<1	<1	3	<1	<1	1	2
FORMALDEHYDE	106	68	132	15	137	234	12
IPRODIONE	549,994	582,227	721,086	656,402	886,077	804,311	666,336
LINDANE	21,409	21,737	26,921	22,984	19,380	25,352	36,573
MANCOZEB	148,643	186,333	262,758	273,836	405,494	351,801	284,134
MANEB	216,990	290,011	373,116	512,009	652,122	731,079	624,123
METAM-SODIUM	63,583	135,606	136,218	183,625	199,457	215,899	198,395
MINERAL OIL	56,464	74,016	84,845	130,688	144,413	190,550	191,954
ORTHO-PHENYLPHENOL, SODIUM SALT	733	111	52	88	47	652	<1

Table 4B (cont.)

Active Ingredient	1991	1992	1993	1994	1995	1996	1997
OXADIAZON	2,706	1,317	1,094	1,812	2,400	2,213	1,832
OXYTHIOQUINOX	8,040	9,407	9,227	6,410	10,000	8,768	5,896
PARA-DICHLOROBENZENE	<1	<1	<1	<1	<1	<1	<1
PCP	1	1	<1	2	<1	15	4
PETROLEUM DISTILLATES	194,740	303,898	304,055	340,671	440,375	378,714	308,206
PETROLEUM DISTILLATES, REFINED	8	540	1,809	4,173	3,976	5,145	6,146
PETROLEUM OIL, UNCLASSIFIED	601,456	597,185	631,281	603,690	703,859	663,575	811,902
POTASSIUM DICHROMATE	<1	<1	<1	<1	<1	<1	<1
PROPARGITE	767,907	1,006,602	952,438	1,030,485	1,052,358	980,963	989,265
PROPOXUR	2	8	<1	14	5	9	73
PROPYLENE OXIDE	<1	10	<1	<1	<1	<1	<1
PROPYZAMIDE	165,848	156,702	156,678	157,829	155,773	150,791	140,791
SILICA AEROGEL	5	<1	<1	1	1	1	5
SODIUM DICHROMATE	0	0	0	0	0	<1	<1
THIODICARB	0	0	<1	0	22,785	176,788	223,154
Total	3,541,512	4,321,391	4,739,268	4,992,214	5,991,500	6,012,079	5,536,412

Pounds of Pesticides Categorized as Carcinogens Reported Used in California

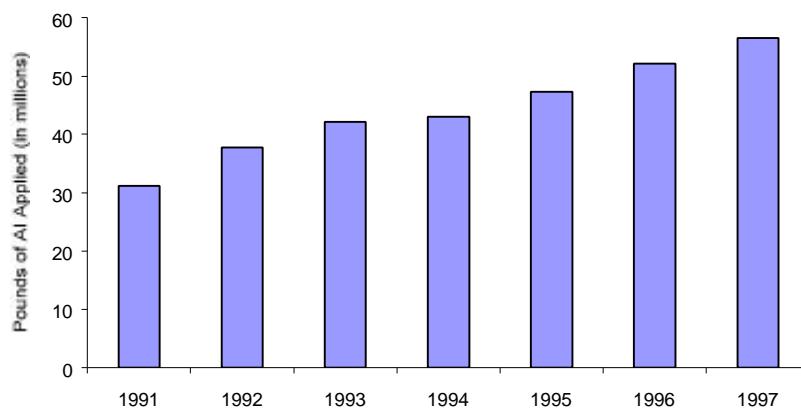


Figure 2A. The reported pounds of pesticides used that are listed by U.S. EPA as B2 carcinogens, or that are on the State's Proposition 65 list of chemicals "known to cause cancer." Use is given for each year from 1991 to 1997. Use includes both agricultural and non-agricultural applications. Data are from the Department of Pesticide Regulation's Pesticide Use Reports with probable errors removed.

Acres Treated in California by Pesticides Categorized as Carcinogens

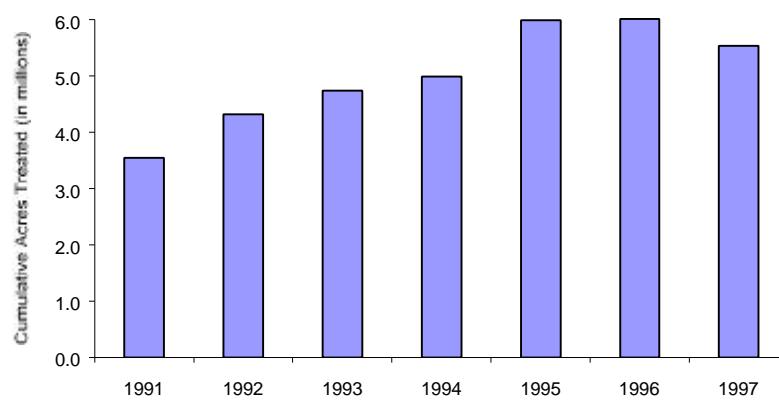


Figure 2B. The reported cumulative acres treated in California with pesticides that are listed by U.S. EPA as B2 carcinogens, or that are on the State's Proposition 65 list of chemicals "known to cause cancer." Use is given for each year from 1991 to 1997. Use includes primarily agricultural applications. Data from the Department of Pesticide Regulation's Pesticide Use Reports with extreme values in rate of use were removed.

Table 5A. The reported pounds of cholinesterase-inhibiting pesticide active ingredients in California. These pesticides are the currently registered organophosphate and carbamate active ingredients. Use is given for each year from 1991 to 1997. Use includes both agricultural and non-agricultural applications. Data are from the Department of Pesticide Regulation's Pesticide Use Reports with probable errors removed.

Active Ingredient	1991	1992	1993	1994	1995	1996	1997
3-IODO-2-PROPYNYL BUTYL CARBAMATE	<1	0	<1	0	0	<1	0
ACEPHATE	346,072	380,706	331,453	371,862	458,012	355,350	343,840
ALDICARB	190,707	164,291	237,382	225,973	354,500	545,117	530,066
AZINPHOS METHYL	478,506	520,356	474,748	418,935	406,230	406,099	336,353
BENDIOCARB	16,218	20,150	9,740	4,431	1,526	1,674	259
BENSULIDE	73,225	57,944	55,639	64,796	69,271	94,587	129,784
BUTYLCATE	71,571	90,218	121,979	108,686	67,179	87,612	84,268
CARBARYL	935,071	775,078	773,404	820,787	835,811	809,794	753,801
CARBOFURAN	320,489	287,629	289,581	278,108	242,999	220,622	183,321
CHLORPROPHAM	3,451	3,953	5,448	3,000	3,230	3,015	2,057
CHLORPYRIFOS	2,024,872	2,536,605	2,246,121	2,887,838	3,385,416	2,687,809	3,152,564
CYCLOATE	44,451	49,041	51,715	51,035	49,138	44,628	55,459
DDVP	5,466	5,224	3,331	4,798	6,063	13,097	13,636
DESMEDIPHAM	9,620	10,430	8,956	8,588	8,465	6,092	6,188
DIAZINON	949,751	1,306,574	1,412,733	1,358,358	1,216,935	1,093,121	955,108
DIMETHOATE	687,998	635,778	586,300	671,948	583,498	419,807	515,798
DISULFOTON	173,463	176,216	151,010	134,600	95,972	142,372	128,335
EPTC	747,253	641,581	698,176	765,576	660,185	703,996	579,245
ETHEPHON	807,506	608,613	859,439	848,134	982,776	951,415	882,802
ETHOPROP	77,274	41,512	62,143	51,270	51,104	27,955	23,842
FENAMIPHOS	182,331	186,312	232,396	178,781	187,242	189,379	156,280
FENTHION	1,298	1,089	146	186	413	141	176
FONOFOSS	66,346	58,213	55,991	73,167	74,936	67,969	50,555
FORMETANATE HYDROCHLORIDE	173,892	200,592	182,061	152,622	104,012	106,168	97,907
MALATHION	869,360	779,204	708,469	749,317	801,496	673,379	773,782
METHAMIDOPHOS	309,889	283,562	330,178	240,959	500,055	260,255	312,067
METHIDATHION	323,457	385,998	451,826	367,447	321,605	328,328	309,154
METHIOCARB	6,247	4,613	3,686	4,126	2,672	2,120	4,769
METHOMYL	596,848	571,743	528,545	707,814	807,977	679,383	833,758
METHYL PARATHION	71,108	102,730	154,452	129,155	140,469	130,614	153,187
MOLINATE	1,133,846	1,375,411	1,518,002	1,496,227	1,377,257	1,356,258	1,170,699
NALED	171,127	160,012	180,642	457,723	700,676	351,267	615,314
OXAMYL	59,035	70,894	71,478	73,440	66,179	82,327	119,441
OXYDEMETON-METHYL	115,179	118,285	117,416	111,347	120,101	106,612	115,781
PEBULATE	281,591	219,766	191,529	235,690	244,181	202,634	184,015
PHENMEDIPHAM	9,706	10,632	9,062	8,863	8,771	6,612	6,621
PHORATE	193,982	217,399	151,250	159,146	135,887	160,854	139,725
PHOSMET	275,532	258,465	204,157	189,415	266,349	395,160	566,484
PROFENOFOSS	6,595	39,708	51,239	263,884	245,420	184,264	150,575

Table 5A (cont.)

Active Ingredient	1991	1992	1993	1994	1995	1996	1997
PROPAMOCARB HYDROCHLORIDE	0	0	0	0	0	16,341	10,215
PROPETAMPHOS	32,886	24,235	23,804	38,307	77,985	23,249	17,338
PROPOXUR	4,374	3,187	2,674	2,667	3,296	1,341	1,760
S,S,S-TRIBUTYL PHOSPHOROTRITHIOATE	798,052	757,765	920,837	892,441	866,726	760,809	626,684
SODIUM DIMETHYL DITHIO CARBAMATE	0	4	0	337	1	0	0
SULFOTEP	897	1,199	1,141	1,000	509	316	355
SULPROFOS	10,255	1,370	236	876	171	0	119
TETRACHLORVINPHOS	18,924	27,270	8,247	10,051	7,118	7,056	6,044
THIOBENCARB	73,164	175,805	252,423	406,085	559,610	618,412	894,287
THIODICARB	0	0	<1	0	13,679	122,927	156,002
TRICHLORFON	7,090	4,236	5,607	4,275	4,552	3,327	3,843
Total	13,755,975	14,351,598	14,736,792	16,034,073	17,117,657	15,451,662	16,153,664

Table 5B. The reported cumulative acres treated with cholinesterase-inhibiting pesticide active ingredients in California. These pesticides are the currently registered organophosphate and carbamate active ingredients. Use is given for each year from 1991 to 1997. Use includes primarily agricultural applications. The total for acres treated is less than the sum of acres for all active ingredients because some products contain more than one active ingredient. Data are from the Department of Pesticide Regulation's Pesticide Use Reports with probable errors removed.

Active Ingredient	1991	1992	1993	1994	1995	1996	1997
3-IODO-2-PROPYNYL BUTYL CARBAMATE	<1	0	<1	0	0	<1	0
ACEPHATE	380,205	394,165	328,012	402,643	489,259	406,607	372,566
ALDICARB	195,378	153,672	254,372	256,428	355,717	490,499	442,029
AZINPHOS METHYL	362,047	357,655	324,769	293,466	274,347	277,745	233,406
BENDIOCARB	2,460	2,268	1,661	1,574	499	188	19
BENSULIDE	27,085	17,545	15,239	17,446	22,489	31,916	45,795
BUTYLCATE	15,899	19,777	24,957	23,105	14,864	17,689	17,572
CARBARYL	290,073	322,588	285,046	291,147	305,452	312,058	292,721
CARBOFURAN	465,526	393,594	397,071	460,647	449,507	364,150	322,064
CHLORPROPHAM	187	118	482	20	<1	4	26
CHLORPYRIFOS	1,119,058	1,130,628	1,163,147	1,910,520	2,824,142	1,869,874	2,223,551
CYCLOATE	21,806	23,172	21,600	22,571	20,685	19,597	25,986
DDVP	5,530	2,960	683	1,888	1,887	1,499	2,596
DESMEDIPHAM	53,139	59,693	58,486	62,171	71,577	51,183	61,368
DIAZINON	692,487	792,397	828,003	878,221	752,898	680,947	530,355
DIMETHOATE	1,267,141	1,031,266	1,005,411	1,205,884	1,193,214	955,445	1,097,751
DISULFOTON	144,397	155,955	127,555	114,949	87,291	147,078	124,319
EPTC	282,029	238,804	246,970	273,441	241,587	232,820	208,093
ETHEPHON	768,964	555,613	727,925	704,394	806,425	776,247	700,941
ETHOPROP	9,224	5,113	7,062	5,767	5,470	3,139	3,213
FENAMIPHOS	103,512	107,492	142,914	114,333	112,249	111,729	97,013

Table 5B (cont.)

Active Ingredient	1991	1992	1993	1994	1995	1996	1997
FENTHION	13	<1	<1	<1	<1	<1	<1
FONOFOS	56,882	47,038	50,046	58,852	59,041	55,207	36,123
FORMETANATE HYDROCHLORIDE	166,305	180,958	170,117	141,203	100,837	103,521	95,544
MALATHION	448,833	403,997	357,210	401,037	425,062	363,635	410,658
METHAMIDOPHOS	415,188	441,648	284,160	199,314	418,703	313,618	263,816
METHIDATHION	277,473	317,536	315,398	255,006	231,930	245,914	200,528
METHiocarb	11,694	8,655	4,853	3,394	2,129	1,511	2,906
METHOMYL	1,145,546	969,920	932,435	1,215,586	1,425,295	1,145,115	1,376,868
METHYL PARATHION	126,351	135,774	171,353	137,691	129,976	125,729	125,638
MOLINATE	292,711	350,994	388,852	384,031	348,465	357,239	317,680
NALED	160,356	175,023	167,034	473,011	702,155	338,861	604,615
OXAMYL	106,355	97,332	106,553	115,085	106,205	122,353	176,793
OXYDEMETON-METHYL	238,216	235,570	235,013	226,433	253,868	220,824	244,056
PEBULATE	94,747	78,948	65,788	76,688	86,494	74,647	69,381
PHENMEDIPHAM	53,368	60,237	58,343	62,694	72,060	52,125	62,449
PHORATE	178,479	187,605	125,357	133,392	111,217	123,789	106,427
PHOSMET	209,297	174,281	150,436	136,500	172,539	214,416	236,611
PROFENOFOS	29,892	44,258	62,345	336,830	296,860	211,769	162,204
PROPAMOCARB HYDROCHLORIDE	0	0	0	0	0	23,793	14,677
PROPETAMPHOS	<1	<1	<1	<1	<1	<1	<1
PROPOXUR	2	8	<1	14	5	9	73
S,S,S-TRIBUTYL PHOSPHOROTRITHIOATE	569,961	574,170	652,163	615,978	604,586	531,052	437,505
SODIUM DIMETHYL DITHIO CARBAMATE	0	<1	0	<1	<1	0	0
SULFOTEP	2,071	903	1,191	884	537	408	251
SULPROFOS	18,224	1,252	1,273	896	299	0	83
TETRACHLORVINPHOS	1,381	2,072	553	780	519	674	356
THIOBENCARB	18,846	45,140	65,612	91,906	126,745	159,121	227,658
THIODICARB	0	0	<1	0	22,785	176,788	223,154
TRICHLORFON	4,633	1,991	2,444	818	1,037	204	149
Total	10,771,391	10,235,910	10,270,935	12,043,271	13,656,068	11,660,675	12,135,522

Pounds of Cholinesterase-Inhibiting Pesticides Reported Used in California

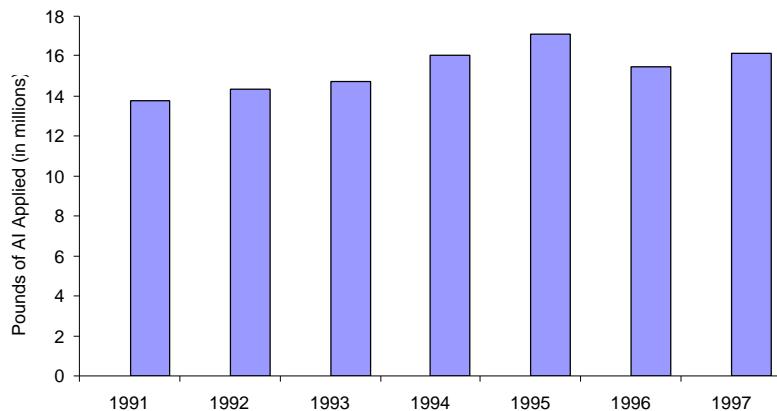


Figure 3A. The pounds of cholinesterase-inhibiting pesticide active ingredients reported in California. These pesticides are the currently registered organophosphate and carbamate active ingredients. Use is given for each year from 1991 to 1997. Use includes both agricultural and non-agricultural applications. Data are from the Department of Pesticide Regulation's Pesticide Use Reports with probable errors removed.

Acres Treated in California with Cholinesterase-Inhibiting Pesticides

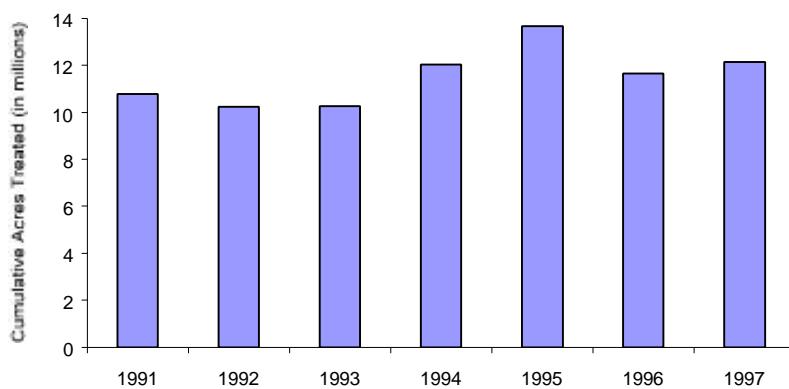


Figure 3B. The reported cumulative acres treated with cholinesterase-inhibiting pesticide active ingredients in California. These pesticides are the currently registered organophosphate and carbamate active ingredients. Use is given for each year from 1991 to 1997. Use includes primarily agricultural applications. Data are from the Department of Pesticide Regulation's Pesticide Use Reports with probable errors removed.

Table 6A. The reported use of pesticides on the groundwater protection list [California Code of Regulations, Title 3, Division 6, Chapter 4, Subchapter 1, Article 1, Section 6800(a)] and norflurazon. Use is given for each year from 1991 through 1997. Use includes both agricultural and non-agricultural use by pounds of active ingredient; Data are from the Department of Pesticide Regulation's Pesticide Use Reports with probable errors removed.

Pounds Applied

Active Ingredient	1991	1992	1993	1994	1995	1996	1997
ATRAZINE	52,556	48,313	44,485	46,497	36,078	57,018	46,568
ATRAZINE, OTHER RELATED	2,792	2,567	2,365	2,480	1,932	3,062	2,502
BENTAZON, SODIUM SALT	1,100	846	1,017	1,175	655	1,518	1,907
BROMACIL	99,906	112,160	117,128	104,052	95,444	98,293	82,424
BROMACIL, DIMETHYLAMINE SALT	<1	0	0	0	0	0	0
BROMACIL, LITHIUM SALT	5,742	4,837	7,045	11,085	6,517	17,381	9,141
DIURON	1,079,083	916,083	1,074,854	1,234,507	1,054,409	1,265,426	1,228,114
NORFLURAZON	141,752	171,375	164,451	154,383	153,138	196,142	212,621
PROMETON	186	87	41	84	117	68	20
SIMAZINE	752,893	887,151	957,812	890,353	837,366	839,209	764,586
Total	2,136,012	2,143,420	2,369,197	2,444,616	2,185,656	2,478,115	2,347,882

Table 6B. The reported use of pesticides on the groundwater protection list [California Code of Regulations, Title 3, Division 6, Chapter 4, Subchapter 1, Article 1, Section 6800(a)] and norflurazon. Use is given for each year from 1991 through 1997; Use includes primarily agricultural uses by cumulative acres treated. The total for acres treated is less than the sum of acres for all active ingredients because some products contain more than one active ingredient. Data are from the Department of Pesticide Regulation's Pesticide Use Reports with probable errors removed.

Cumulative Acres Treated

Active Ingredient	1991	1992	1993	1994	1995	1996	1997
ATRAZINE	21,374	21,425	23,617	32,065	22,234	32,043	27,257
ATRAZINE, OTHER RELATED	21,374	21,425	23,617	32,065	22,234	32,042	27,257
BENTAZON, SODIUM SALT	1,260	894	1,107	1,688	805	1,460	2,010
BROMACIL	69,584	82,090	78,423	65,421	66,289	62,206	58,722
BROMACIL, DIMETHYLAMINE SALT	<1	0	0	0	0	0	0
BROMACIL, LITHIUM SALT	<1	<1	<1	<1	<1	<1	<1
DIURON	348,038	392,716	414,892	454,829	507,279	685,352	819,993
NORFLURAZON	117,279	143,942	142,274	139,498	133,585	179,015	186,991
PROMETON	48	3	11	8	23	27	8
SIMAZINE	544,287	616,551	615,003	589,560	573,735	607,228	613,237
Total	1,033,579	1,179,383	1,198,303	1,218,778	1,238,484	1,505,936	1,651,236

Pounds of Pesticides on the Groundwater Protection List Reported Used in California

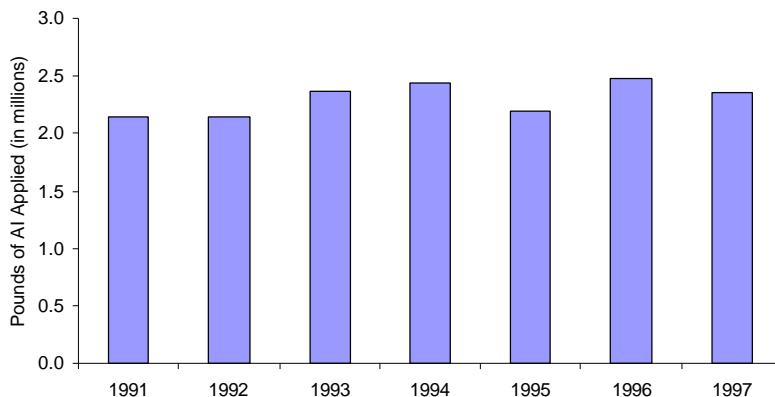


Figure 4A. The pounds of all pesticide active ingredients on the groundwater protection list reported in California (plus norflurazon). The pesticide list is from the California Code of Regulations, Title 3, Division 6, Chapter 4, Subchapter 1, Article 1, Section 6800(a) and norflurazon. Use is given for each year from 1991 to 1997. Pounds includes both agricultural and non-agricultural applications. Data from the Department of Pesticide Regulation's Pesticide Use Reports with probable errors removed.

Acres Treated in California with Pesticides on the Groundwater Protection List

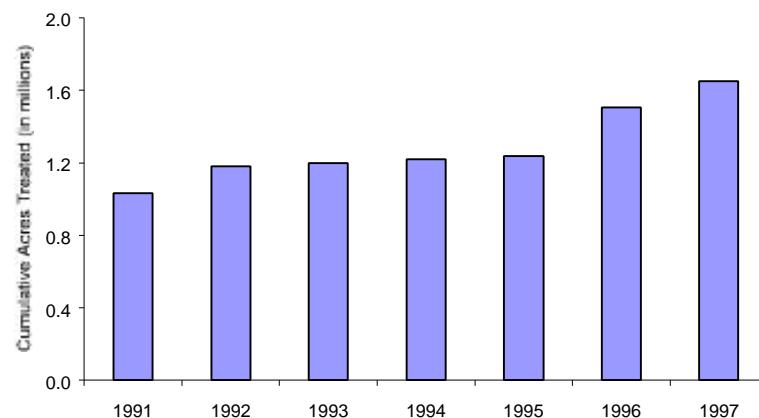


Figure 4B. The reported cumulative acres treated with all pesticide active ingredients on the groundwater protection list applied in California. The pesticide list is from the California Code of Regulations, Title 3, Division 6, Chapter 4, Subchapter 1, Article 1, Section 6800(a) and norflurazon. Use is given for each year from 1991 to 1996. Acres treated includes primarily agricultural applications. Data from the Department of Pesticide Regulation's Pesticide Use Reports with probable errors removed.

Table 7A. The reported pounds of pesticide active ingredients on the toxic air contaminants list applied in California. These pesticides are the currently registered active ingredients listed in the California Code of Regulations, Title 3, Division 6, Chapter 4, Subchapter 1, Article 1, Section 6860. Use is given for each year from 1991 to 1997. Use includes both agricultural and non-agricultural applications. Data are from the Department of Pesticide Regulation's Pesticide Use Reports with probable errors removed.

Active Ingredient	1991	1992	1993	1994	1995	1996	1997
1,3-DICHLOROPROPENE	13,555	23,998	47,694	2,122	409,821	1,956,846	2,400,930
2,4-D	23,197	26,098	26,462	27,544	23,995	22,089	10,227
2,4-D, 2-ETHYLHEXYL ESTER	4,966	112	12	71	278	10	1,313
2,4-D, ALKANOLAMINE SALTS (ETHANOL AND ISOPROPANOL AMINES)	20,469	32,471	35,378	28,863	30,642	27,954	25,684
2,4-D, BUTOXYETHANOL ESTER	27,554	36,014	47,601	67,414	31,743	38,567	13,263
2,4-D, BUTOXYPROPYL ESTER	584	1,674	1,921	1,166	224	61	13
2,4-D, BUTYL ESTER	0	2	0	1	39	0	0
2,4-D, DIETHANOLAMINE SALT	3,695	5,950	1,572	714	1,938	3,003	24,809
2,4-D, DIMETHYLAMINE SALT	260,635	366,038	350,293	399,046	454,658	468,771	428,874
2,4-D, DODECYLAMINE SALT	1,347	86	0	5	16	8	58
2,4-D, HEPTYLAMINE SALT	0	0	0	0	86	<1	0
2,4-D, ISOOCTYL ESTER	4,022	2,545	2,659	1,212	13,466	7,822	60,356
2,4-D, ISOPROPYL ESTER	2,635	3,362	4,540	4,508	5,077	5,090	6,543
2,4-D, N-OLEYL-1,3- PROPYLENEDIAMINE SALT	8,047	1,708	670	672	37	35	0
2,4-D, OCTYL ESTER	0	0	0	0	15	0	0
2,4-D, PROPYL ESTER	3,303	3,394	2,515	2,326	2,032	1,774	1,575
2,4-D, TETRADECYLAMINE SALT	313	20	0	1	4	2	13
2,4-D, TRIETHYLAMINE SALT	78,395	117,451	107,782	121,241	105,656	93,876	34,610
2,4-D, TRIISOPROPYLAMINE SALT	74	20	10	24	6	2	3
ACROLEIN	204,625	227,022	298,535	336,993	362,773	322,578	341,245
ARSENIC ACID	98,800	72,182	13,014	27,571	37,206	53,777	59,835
ARSENIC PENTOXIDE	201,059	262,017	150,200	86,445	83,814	205,089	64,372
ARSENIC TRIOXIDE	<1	<1	<1	<1	<1	<1	<1
CAPTAN	253,452	295,542	483,507	608,658	734,314	918,588	799,878
CAPTAN, OTHER RELATED	7,461	7,671	12,093	14,890	17,831	21,729	19,448
CARBARYL	935,071	775,078	773,404	820,787	835,811	809,794	753,801
CHLORINE	354,459	417,665	466,825	750,653	2,815,119	330,017	423,469
CHROMIC ACID	279,852	364,900	209,555	120,822	117,092	286,521	89,931
DDVP	5,466	5,224	3,331	4,798	6,063	13,097	13,636
ETHYLENE OXIDE	29	7	1,471	3	0	0	0
FORMALDEHYDE	271,663	5,094	13,322	11,864	153,519	334,548	403,824
HYDROGEN CHLORIDE	745	122	32	206	224	1,938	129
LINDANE	8,590	8,208	9,715	5,281	4,507	4,576	5,388
MANCOZEB	283,715	336,371	446,086	464,924	659,240	567,866	526,364
MANEB	352,155	464,469	625,326	912,903	1,257,122	1,328,318	1,081,124
META-CRESOL	3	3	5	2	2	3	6

Table 7A (cont.)

Active Ingredient	1991	1992	1993	1994	1995	1996	1997
METHANOL	2,511	768	1,920	100	27	0	0
METHOXYCHLOR	761	595	1,412	692	1,049	484	358
METHOXYCHLOR, OTHER RELATED	54	46	52	90	139	62	44
METHYL BROMIDE	17,578,480	18,051,774	14,115,900	16,607,324	17,165,964	16,022,069	15,663,832
NAPHTHALENE	1	1	1	1	<1	0	1
PARA-DICHLOROBENZENE	108	82	37	3	2	4	3
PARATHION	675,456	33,913	4,665	6,104	13,642	14,050	5,187
PCNB	90,070	89,999	87,672	91,601	109,755	83,087	89,548
PCP	196,252	107,946	91,123	40	3	3	8
PCP, OTHER RELATED	22,826	12,555	10,596	5	<1	<1	1
PCP, SODIUM SALT	10	0	2,361	0	0	0	0
PCP, SODIUM SALT, OTHER RELATED	1	0	329	0	0	0	0
PHOSPHORUS	159	167	132	29	34	58	14
POTASSIUM PERMANGANATE	0	238	0	0	0	0	0
PROPOXUR	4,374	3,187	2,674	2,667	3,296	1,341	1,760
PROPYLENE OXIDE	111,919	131,091	34,764	41,815	131,593	224,495	198,559
SODIUM CYANIDE	197	120	1,597	1,754	1,347	1,338	2,197
SODIUM DICHROMATE	0	0	0	0	0	180,478	182,185
TRIFLURALIN	1,352,819	1,087,377	1,193,363	1,261,342	1,380,785	1,143,695	1,191,780
XYLENE	46,843	30,216	45,137	29,009	17,965	12,627	8,511
Total	23,792,777	23,412,592	19,729,265	22,866,308	26,989,969	25,508,141	24,934,709

Table 7B. The reported cumulative acres treated in California with each pesticide active ingredient on the toxic air contaminants list. These pesticides are the currently registered active ingredients listed in the California Code of Regulations, Title 3, Division 6, Chapter 4, Subchapter 1, Article 1, Section 6860. Use is given for each year from 1991 to 1997. Use includes primarily agricultural applications. The total for acres treated is less than the sum of acres for all active ingredients because some products contain more than one active ingredient. Data from the Department of Pesticide Regulation's Pesticide Use Reports with probable errors removed.

Active Ingredient	1991	1992	1993	1994	1995	1996	1997
1,3-DICHLOROPROPENE	91	447	823	33	4,174	17,223	22,193
2,4-D	115,952	167,271	156,294	156,563	151,453	137,230	50,709
2,4-D, 2-ETHYLHEXYL ESTER	3,552	28	80	65	385	160	729
2,4-D, ALKANOLAMINE SALTS (ETHANOL AND ISOPROPANOL AMINES)	13,147	29,351	33,132	26,138	22,298	21,872	20,055
2,4-D, BUTOXYETHANOL ESTER	22,483	31,154	35,573	46,343	29,933	35,599	13,504
2,4-D, BUTOXYPROPYL ESTER	5	52	63	100	5	2	51
2,4-D, BUTYL ESTER	0	<1	0	<1	<1	0	0
2,4-D, DIETHANOLAMINE SALT	4,177	24,143	1,710	933	4,683	8,721	88,149
2,4-D, DIMETHYLAMINE SALT	258,308	395,276	388,083	474,599	524,146	540,728	527,870
2,4-D, DODECYLAMINE SALT	1,891	2	0	<1	<1	<1	76
2,4-D, HEPTYLAMINE SALT	0	0	0	0	18	<1	0
2,4-D, ISOOCTYL ESTER	1,448	1,595	220	379	3,497	5,163	35,045
2,4-D, ISOPROPYL ESTER	28,741	48,471	61,243	63,244	72,878	69,081	87,492
2,4-D, N-OLEYL-1,3- PROPYLENEDIAMINE SALT	10,956	2,493	1,475	449	36	26	0
2,4-D, OCTYL ESTER	0	0	0	0	<1	0	0
2,4-D, PROPYL ESTER	44,463	40,929	33,904	28,812	22,655	23,846	21,479
2,4-D, TETRADECYLAMINE SALT	1,891	2	0	<1	<1	<1	76
2,4-D, TRIETHYLAMINE SALT	103,570	161,126	149,513	152,474	146,454	131,679	46,600
2,4-D, TRIIISOPROPYLAMINE SALT	<1	<1	<1	<1	<1	<1	<1
ACROLEIN	302	724	243	888	3,190	2,462	1,514
ARSENIC ACID	<1	<1	<1	<1	<1	<1	<1
ARSENIC PENTOXIDE	<1	103	<1	660	<1	<1	<1
ARSENIC TRIOXIDE	<1	<1	<1	<1	<1	<1	<1
CAPTAN	127,668	134,103	212,563	244,164	295,860	381,989	347,631
CAPTAN, OTHER RELATED	123,826	132,927	210,620	244,097	295,831	381,989	347,235
CARBARYL	290,073	322,588	285,046	291,147	305,452	312,058	292,721
CHLORINE	2,800	700	4	<1	290	<1	1,005
CHROMIC ACID	<1	103	<1	660	<1	<1	<1
DDVP	5,530	2,960	683	1,888	1,887	1,499	2,596
ETHYLENE OXIDE	<1	<1	<1	<1	0	0	0
FORMALDEHYDE	106	68	132	15	137	234	12
HYDROGEN CHLORIDE	<1	<1	<1	1	<1	1	<1
LINDANE	21,409	21,737	26,921	22,984	19,380	25,352	36,573
MANCOZEB	148,643	186,333	262,758	273,836	405,494	351,801	284,134
MANEB	216,990	290,011	373,116	512,009	652,122	731,079	624,123
META-CRESOL	2,052	931	1,585	930	1,279	1,309	3,488

Table 7B (cont.)

Active Ingredient	1991	1992	1993	1994	1995	1996	1997
METHANOL	10	240	5	<1	<1	0	0
METHOXYCHLOR	320	679	233	220	30	19	131
METHOXYCHLOR, OTHER RELATED	99	187	1	70	5	9	52
METHYL BROMIDE	103,092	124,739	89,220	106,694	107,933	96,507	103,068
NAPHTHALENE	<1	<1	<1	<1	<1	0	<1
PARA-DICHLOROBENZENE	<1	<1	<1	<1	<1	<1	<1
PARATHION	423,068	24,579	2,459	3,404	6,688	5,099	2,071
PCNB	62,867	63,638	61,114	55,371	53,079	44,187	29,169
PCP	1	1	<1	2	<1	15	4
PCP, OTHER RELATED	1	1	<1	2	<1	15	4
PCP, SODIUM SALT	<1	0	<1	0	0	0	0
PCP, SODIUM SALT, OTHER RELATED	<1	0	<1	0	0	0	0
PHOSPHORUS	10,479	15,047	7,751	3,435	1,908	69	790
POTASSIUM PERMANGANATE	0	<1	0	0	0	0	0
PROPOXUR	2	8	<1	14	5	9	73
PROPYLENE OXIDE	<1	10	<1	<1	<1	<1	<1
SODIUM CYANIDE	191,856	18,000	<1	82,520	6,040	3,020	84,800
SODIUM DICHROMATE	0	0	0	0	0	<1	<1
TRIFLURALIN	1,186,916	1,039,487	1,195,142	1,160,072	1,282,997	1,086,892	1,131,033
XYLENE	60,307	44,308	48,402	28,673	28,870	24,221	13,568
Total	3,326,109	3,010,123	3,253,793	3,561,613	3,980,659	3,889,449	3,700,280

Pounds of Pesticides on the Toxic Air Contaminants List Reported Used in California

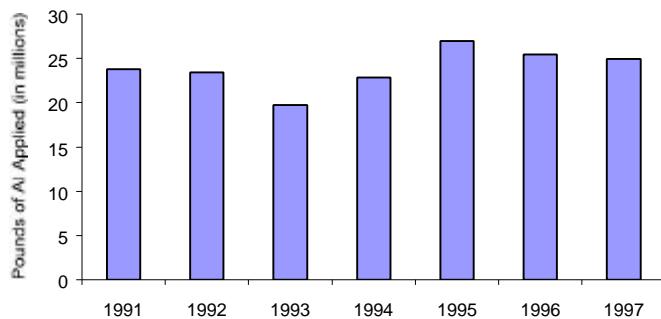


Figure 5A. The pounds of pesticide active ingredients on the toxic air contaminants list reported in California. These pesticides are the currently registered active ingredients listed in the California Code of Regulations, Title 3, Division 6, Chapter 4, Subchapter 1, Article 1, Section 6860. Use is given for each year from 1991 to 1997. Use includes both agricultural and non-agricultural applications. Data are from the Department of Pesticide Regulation's Pesticide Use Reports with probable errors removed.

Acres Treated in California with Pesticides on the Toxic Air Contaminants List

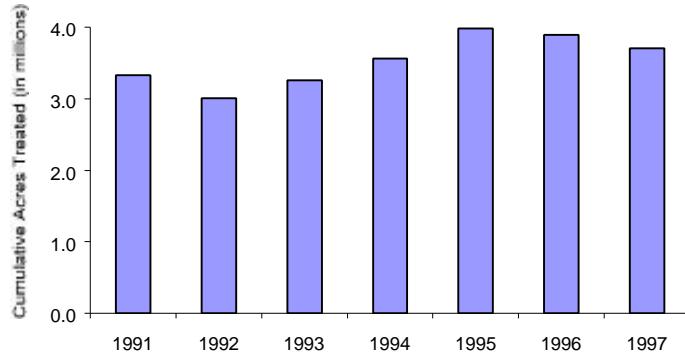


Figure 5B. The cumulative acres treated in California with each pesticide active ingredient on the toxic air contaminants list. These pesticides are the currently registered active ingredients listed in the California Code of Regulations, Title 3, Division 6, Chapter 4, Subchapter 1, Article 1, Section 6860. Use is given for each year from 1991 to 1997. Use includes primarily agricultural applications. Data from the Department of Pesticide Regulation's Pesticide Use Reports with probable errors removed.